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US 4908013 A

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UK CL (Edition K) A5R RAR RAT REY
INT CL[5] A01N 1/02, A61B 19/00, A61F
Online databases: WPI; CLAIMS, DIALOG/MEDICINE

(54) Vein reflation apparatus

(57) The apparatus comprises a container 1 in which the vein 5 is subjected to gradual negative pressure generated via a syringe 8, and gauged by a vacuum indicator 11 so as to be within safe limits.

A fluid reservoir 6 is provided for filling the re-flating vein so as to disclose any leakage. The lid 2 is air-tight but easily removable to enable taking out of the vein for leak repair.

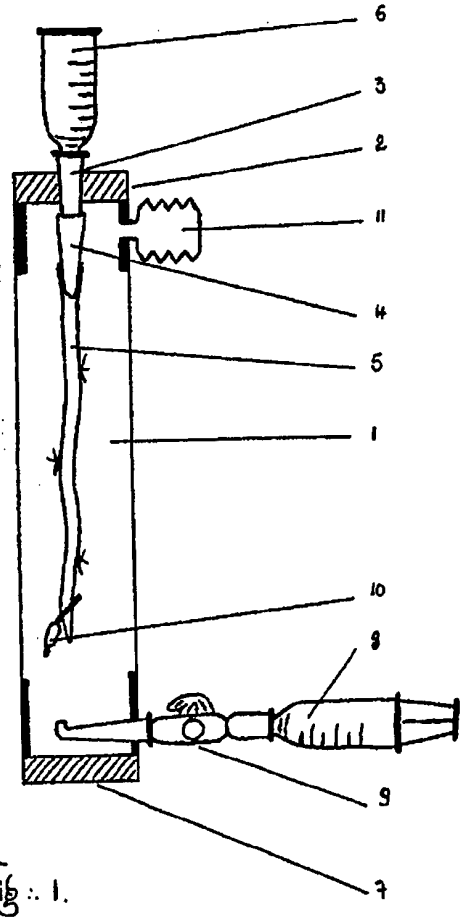

Fig :. 1.

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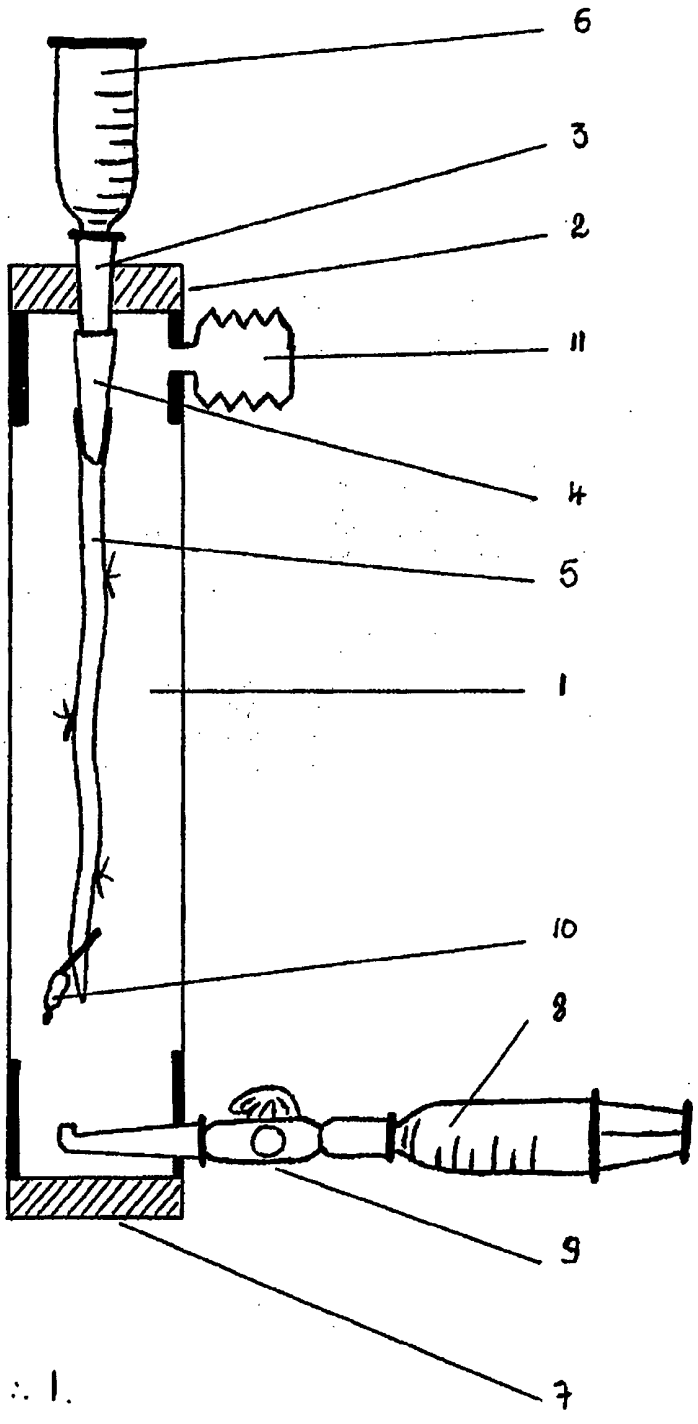

Fig :. 1.

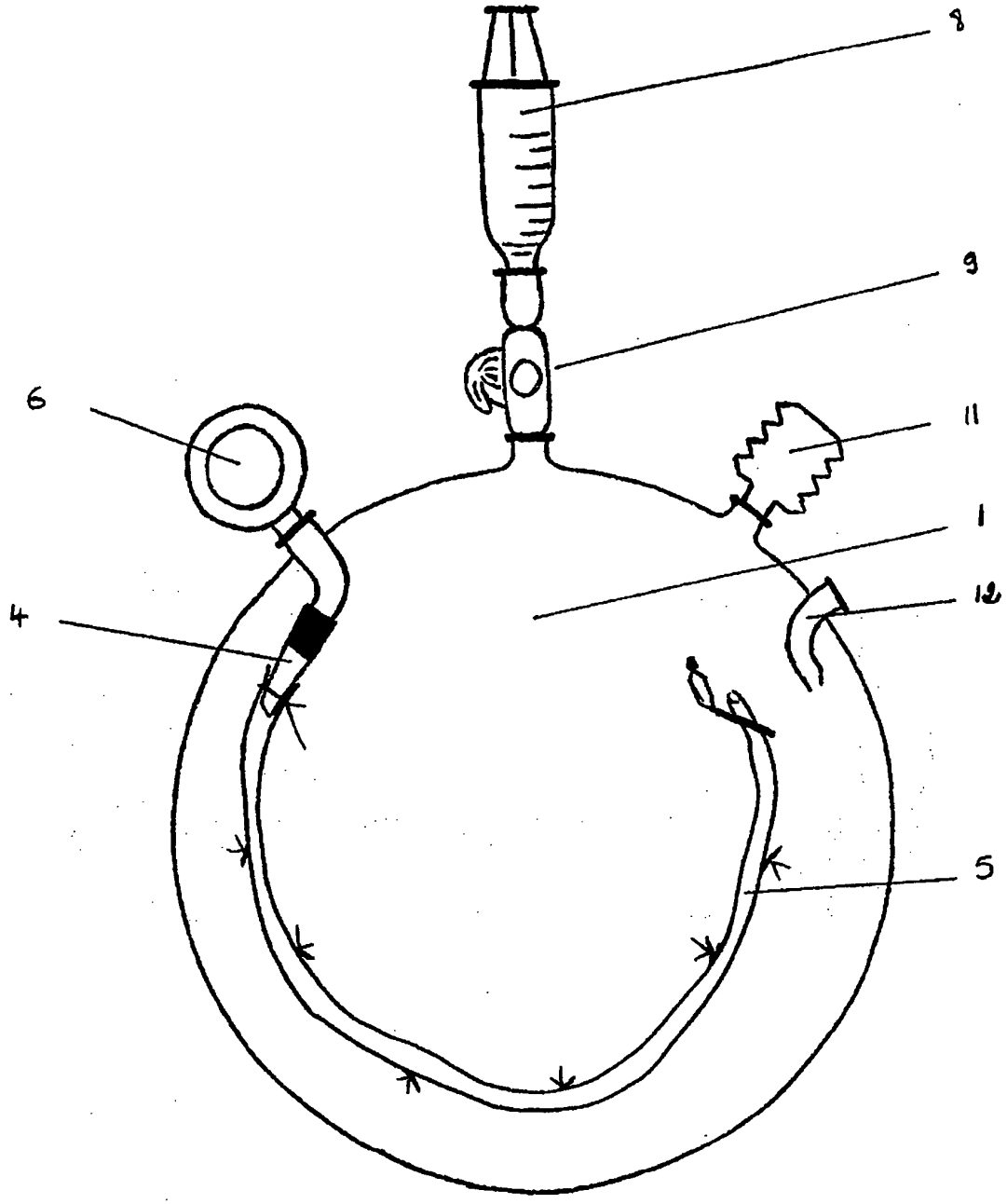

Fig :. 2.

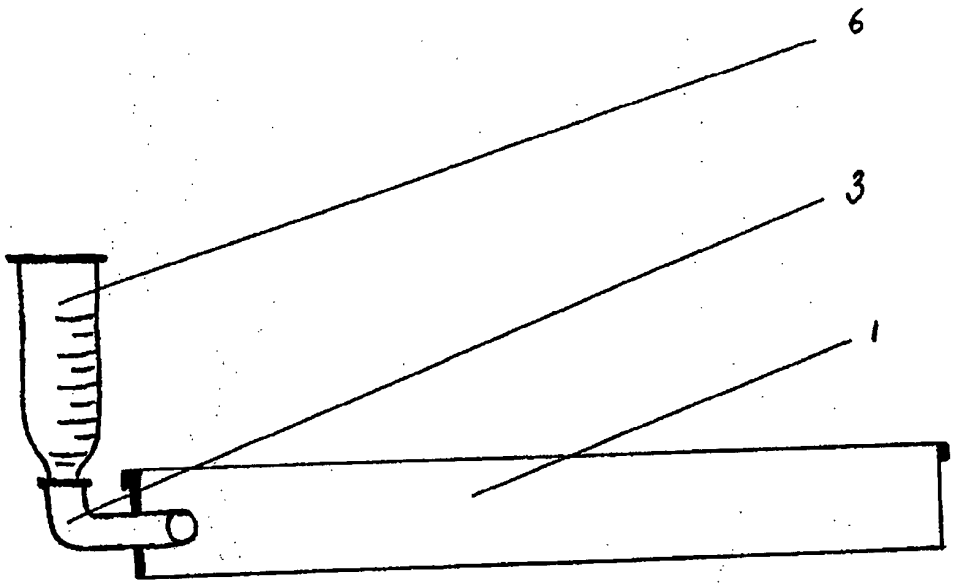

fig: 3.

VEIN RE-FLATOR

The invention is for vein re-flation in preparation for by-pass grafting

Autologous vein grafts, the best by-pass conduit so far available for coronary, vascular and neurosurgery has got a patency rate that is related to the degree of damage to the grafts native intima. In addition to the trauma during harvesting, the manual hydrostatic prassure conventionally needed to distend the vein is the major cause of endothelial damage as it often generates pressures that in clinical situations reach over 300mmHg, experimental studies have shown that pressures more than 200mmHg produce :

- endothelial disruption with increased thrombogenicity.
- lowered endothelial fibrinolytic activity.

According to this invention there is provided a vein re-flator comprising a chamber 1 and means to subject a carefully harvested vein to gradual negative pressure, enough to overcome the spasm yet preventing exposure of the intima to the damaging effect of the hydrostatic pressure customarily used to distend these veins.

An embodiment of the invention will be described with reference to the accompanying drawings in which :
Figure 1 shows in perspective one form of the re-flator
Figure 2 shows the circular version.
Figure 3 shows a cross-section of circular version.

Referring to the drawing the vein re-flator comprises a chamber 1 in the form of transparent plastic tube that could be adjusted in lengh to suit that of the vein to be re-flated.

A lid 2 which will be air tight once fitted in place and will have a central aperture 3 that on the inner side will be adapted to a vessel cannula 4 onto which will be tied the vein to be re-flated 5. The outer side of the aperture will be a female connector to which will be fitted a reservoir 6 with marked volume levels, it will contain the fluid that will fill up the vein as it expands, revealing leaks in the vein; and given the length of the vein, the average internal diameter may be mathematically deducted from the estimated volume accomodated in the vein.

The distal end of the chamber will be sealed with another lid 7 with an outlet. To the outlet a syringe 8 is connected with interposed three-way stopcock 9, with which to generate enough negative pressure to expand the vein back to its origional dimentions. It will be adapted with a vacuum indicator 11, in the form of a bellows,gauged at a preset safe pressure level to monitor the level of negative pressure to which the vein is subjected to as generated by syringe 8.

The distal end of the vein to be clamped with a bulldog 10 which will work as a weight to ease the vein into the chamber.

The needs to be of a loose fit or a less than one turn screwable assembly so as to be removed easily with the vein for any leaking points to be repaired outside the chamber and vein put back in.

When the whole saphenous vein is to be used the chamber could take the shape of a flat circular container with an air-tight lid where the vein may take a spiral lie.

Optional - It could have an extra port 12 for the distal end of the vein

CLAIMS

1 A vein re-flator consisting of a body in the form of a container wherein the vein will be subjected to gradual negative pressure to expand it.

2 Vein re-flator is claimed in Claim 1 wherein it is provided with a reservoir, open to the atmosphere, where is contained the fluid to fill the re-expanding vein and reveal any leaking points.

3 As claimed in 1 and 2 wherein means are provided to generate adequate safe negative pressure to re-expand the vein.

4 Vein re-flator as claimed in above Claims where it is provided with means to monitor the level of negative pressure for it to remain within safe limits.

5 A vein re-flator substantially as described herein.

if it is to be connected to the atmospheric pressure. Thus averting the theoretical danger of intraluminal build-up of pressure, due to valves, at the distal end of the vein.

Patents Act 1977
Examiner's report to the Comptroller under Section 17 (The Search Report)

Application number: 9206770.1

Relevant Technical fields

(i) UK Cl (Edition K) A5R (RAR, RAT, REY)

(ii) Int Cl (Edition 5) A61B 19/00, A61F, A01N 1/02

Search Examiner: L V THOMAS

Databases (see over)

(i) UK Patent Office

(ii) ONLINE DATABASES:WPI, CLAIMS, DIALOG/MEDICINE

Date of Search: 30 JULY 1992

Documents considered relevant following a search in respect of claims 1-5

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	US 4908013 (MULLER ET AL) See lines 37-66, column 2, lines 14-17, column 3 and lines 18-26, column 5	1-3

Category	Identity of document and relevant passages	Relevant to claim(s.

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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